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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/547,680	09/02/2005	Heinrich Hanisch	01873.200014.	9000

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FITZPATRICK CELLA HARPER & SCINTO
1290 Avenue of the Americas
NEW YORK, NY 10104-3800

EXAMINER	
EIDE, HEIDI MARIE	
ART UNIT	PAPER NUMBER
3732	
MAIL DATE	DELIVERY MODE
03/08/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/547,680	HANISCH ET AL.	
	Examiner	Art Unit	
	HEIDI M. EIDE	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-32,34-36,38-42,44-46 and 48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-32,34-36,38-42,44-46 and 48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 26, 2011 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim element “means for modifying the selected portion in any of a plurality of directions” is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. The corresponding structure for a computer-implemented function must include the algorithm as well as the general purpose computer or microprocessor. The written description of the specification in this case does not disclose the algorithm that transformed the general purpose computer

programmed to perform the disclosed algorithm the performed the claimed function. The applicant any express the algorithm in any understandable terms including as a mathematical formula, in prose, in a flow chart or in any other manner that provides sufficient structure.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 29-32, 34-36, 39-42, 44-46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baba (6,049,743).

7. Baba teaches a computer aided design system comprising a computer 1, a display device 7a that is directed by the computer to display an image of a dental restoration body (col. 6, ll. 45-58), the dental restoration body including a plurality of distinct dentally specific indicia, each indicium being a signal, selectable, unique type of dental feature, that is different from each other type of indicia (col. 4, ll. 29-50, col. 7, ll. 65-67, col. 8, ll. 1-3, col. 9, ll. 28-56). Baba teaches the dental restoration body having several distinct dentally specific indicia, such as grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11. Baba teaches, as illustrated in fig. 11, selecting a single point and moving that point to a desired position so that the pontic model does having overlapping surfaces with the adjacent teeth. Baba further teaches in col. 4, ll. 44-50, that any point corresponding to the characteristic morphology can be selected and moved to deform the model when designing the dental restoration. Therefore Baba teaches a plurality of distinct dentally specific indicia that are single, selectable and unique types of dental

features that are different form each other type of indicia. Baba further teaches an input device 8a that enables a user to input a command to the computer to reference any of the plurality of distinct dentally specific indicia to select a portion of the image to be modified, the selected portion being defined by at least the distinct dentally specific indicia referenced by the command (col. 9, ll. 41-45) and at least one design tool that enables the user to modify the selected portion in any of a plurality of directions (col. 9, ll. 28-50). Baba does not specially teach wherein the plurality of distinct dentally specific indicia includes at least one of an equator, a marginal crest, a cusp and a fissure, however, does teach the dental restoration body can be modified by selecting a point corresponding to the characteristic morphology of the restoration body (col. 4, ll. 44-50), therefore it could have been obvious to one having ordinary skill in the art at the time of the invention that the distinct dentally specific indicia can include any of the characteristic morphology of the dental restoration including grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11. With respect to claims 30-32 and 40-42, Baba further teaches wherein the plurality of distinct dentally specific indicia comprise a plurality of dentally specific lines such as grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and a plurality of dentally specific points cuspid apexes or cusps 11. With respect to claim 34, Baba does not specifically teach the selection is made by selecting a region between at least two of the plurality of distinct dentally specific indicia, however, as discussed in detail above, the dental restoration body can be modified by selecting a point corresponding to the characteristic morphology of the

restoration body, therefore, as illustrated in fig. 4A, if a point of the groove 12 is selected, which corresponds to the characteristic morphology of the restoration body, the groove 12 is located between two of the dentally specific points, those being the cusps 11. Therefore the selection is capable of being made by selecting a region between at least two of the plurality of distinct dentally specific indicia. With respect to claims 35 and 45, Baba further teaches wherein the image of the dental restoration body further includes a preparation border (ML, fig. 4A). With respect to claim 36, Baba does not specifically teach wherein the selection is made by selecting a region between the preparation border and at least one of the plurality of distinct dentally specific indicia, however, as discussed in detail above, the dental restoration body can be modified by selecting a point corresponding to the characteristic morphology of the restoration body, therefore, as illustrated in fig. 4A, if a point of the height of contour 15 is selected, the height of contour is located between the preparation border ML and the marginal ridge 14 which is one of the plurality of distinct dentally specific indicia (fig. 4A). Therefore the selection is capable of being made by selecting a region between the preparation border and at least one of the plurality of distinct dentally specific indicia.

8. With respect to claim 39, Baba teaches an imaging processing method comprising the steps of providing an image of a dental restoration body, the image of the dental restoration body including a plurality of distinct dentally specific indicia, each indicium being a single, selectable, unique type of dental feature, that is different from each other type of indicia (col. 4, ll. 29-50, col. 7, ll. 65-67, col. 8, ll. 1-3, col. 9, ll. 28-56).

Baba teaches the dental restoration body having several distinct dentally specific indicia, such as groove or fissure 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11. Baba teaches, as illustrated in fig. 11, selecting a single point and moving that point to a desired position so that the pontic model does having overlapping surfaces with the adjacent teeth. Baba further teaches in col. 4, ll. 44-50, that any point corresponding to the characteristic morphology, which includes that groove, height of contour, marginal ridge and cusps, can be selected and moved to deform the model when designing the dental restoration. Therefore Baba teaches a plurality of distinct dentally specific indicia that are single, selectable and unique types of dental features that are different form each other type of indicia. Baba further teaches accepting an input command to referent any of the plurality of distinct dentally specific indicia to select a portion of the image to be modified, the selected portion being defined by at least the distinct dentally specific indicia referenced by the command and modifying the selected portion with a design tool, the design tool enabling the selected portion to be modified in any of a plurality of directions (col. 9, ll. 28-50). Baba does not specially teach wherein the plurality of distinct dentally specific indicia includes at least one of an equator, a marginal crest, a cusp and a fissure, however, does teach the dental restoration body can be modified by selecting a point corresponding to the characteristic morphology of the restoration body (col. 4, ll. 44-50), therefore it could have been obvious to one having ordinary skill in the art at the time of the invention that the distinct dentally specific indicia can include any of the characteristic morphology of the dental restoration taught by Baba which includes

grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11. With respect to claims 44 and 46, Baba does not specifically teach wherein the selection is made by selecting a region between at least two of the plurality of distinct dentally specific indicia and the selection is made by selecting a region between the preparation border and at least one of the plurality of distinct dentally specific indicia, however, Baba does teach deforming each model so that it does not interfere with adjacent teeth, as illustrated in fig. 10, the overlapping regions to be modified as illustrated. It would have been obvious to one having ordinary skill in the art at the time of the invention to select any point causing an interference with an adjacent tooth to be modified regardless of it location with respect to the preparation border and dentally specific indicia in order to provide an esthetically designed dental restoration. For example if a cusp 11 was causing an interference with an adjacent tooth, the cusp 11 would be selected, the cusp is located between at least two of the plurality of distinct dentally specific indicia (the other cusps 11). Therefore the selection is made by selecting a region between at least tow of the plurality of distinct dental specific indicia. For example if the height of the contour was causing an interference with the adjacent tooth, a point of the height of contour 15 is selected, the height of contour is located between the preparation border ML and the marginal ridge 14 which is one of the plurality of distinct dentally specific indicia (fig. 4A). Therefore the selection is made by selecting a region between the preparation border and at least one of the plurality of distinct dentally specific indicia.

9. With respect to claim 48, Baba teaches a computer aided design system comprising a means for displaying an image of a dental restoration body 7a, the dental restoration body including a plurality of distinct dentally specific indicia, each indicium being a signal, selectable, unique type of dental feature, that is different from each other type of indicia (col. 4, ll. 29-50, col. 7, ll. 65-67, col. 8, ll. 1-3, col. 9, ll. 28-56). Baba teaches the dental restoration body having several distinct dentally specific indicia, such as grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11. Baba teaches, as illustrated in fig. 11, selecting a single point and moving that point to a desired position so that the pontic model does having overlapping surfaces with the adjacent teeth. Baba further teaches in col. 4, ll. 44-50, that any point corresponding to the characteristic morphology can be selected and moved to deform the model when designing the dental restoration. Therefore Baba teaches a plurality of distinct dentally specific indicia that are single, selectable and unique types of dental features that are different form each other type of indicia. Baba further teaches a means for imputing a command 8a to reference any of the plurality of distinct specific indicia to select a portion of the image to be modified, the selected portion being defined by at least the distinct dentally specific indicia referenced by the command (col. 9, ll. 41-45) and a means for modifying the selected portion in any of a plurality of directions (col. 9, ll. 28-50). Baba does not specially teach wherein the plurality of distinct dentally specific indicia includes at least one of an equator, a marginal crest, a cusp and a fissure, however, does teach the dental restoration body can be modified by selecting a point corresponding to the characteristic morphology of

the restoration body (col. 4, ll. 44-50), therefore it could have been obvious to one having ordinary skill in the art at the time of the invention that the distinct dentally specific indicia can include any of the characteristic morphology of the dental restoration including grooves or fissures 12, height of contour or equator 15, a marginal ridge or marginal crest 14 and cuspid apexes or cusps 11.

10. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baba 6,049,743 as applied to claim 29 above, and further in view of Diller 2002/0110786.

11. Baba teaches the invention as substantially claimed and as discussed above, however, does not specifically teach the computer directs the display device to display a plurality of symbols, each of the plurality of symbols representing a deign tool.

12. Diller teaches the computer directs the display device to display a plurality of symbols, each of the plurality of symbols representing a deign tool (par. 114, figs. 24-25). It would have been obvious to one having ordinary skill in the art in the time of the invention to modify the computer system taught by Baba with the design tool display taught by Diller in order for the user to easily modify the shape of the restoration as needed.

Response to Arguments

13. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments filed August 5, 2010 with respect to Baba have been fully considered but they are not persuasive. Applicant argues that Baba does not teach the limitation each indicium being a single, selectable, unique type of dental feature. While it is noted that Baba does teach deforming regions A(n) which includes single type features such as an apex, marginal line section etc and each single type of feature may be included in the region A(n) more than one, it is also noted that Baba teaches selecting one of these single type features, which is located in region A(n), in order to modify the restoration body as discussed in detail above and specifically (col. 4, ll. 44-50). Therefore as discussed in detail above, Baba teaches the limitation of each indicium being a single, selectable, unique type of dental feature.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEIDI M. EIDE whose telephone number is (571)270-3081. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on 571-272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Heidi Eide
Examiner
Art Unit 3732

/Heidi M Eide/
Examiner, Art Unit 3732

3/7/2011